

IN THE CLAIMS

Claim 1 (Cancelled)

Claim 2 (Cancelled)

Claim 3 (Currently Amended): The mold assembly of Claim 2 4, wherein said gas permeable material has an average pore diameter of about 15 microns and a total porosity of about 15%.

Claim 4 (Currently Amended): ~~The mold assembly of claim 2;~~ A mold assembly operable to form a composite material, the mold assembly comprising:

a first mold member; and

a second mold member operable to join with said first mold member to form a mold cavity, the first mold member being translatable with respect to the second mold member,

wherein at least one of said mold members at the surface of the mold member defining the cavity includes a porous gas-permeable material operable to vent therethrough gasses resulting from chemical reactions occurring in said cavity during a molding operation while preventing recombination and condensation of said gaseous reactants within said portion,

wherein said gas-permeable material has a porosity between about 5 to 25% and an average pore diameter between about 1 to 280 microns, and wherein the porous gas-permeable material controls venting of the gasses while maintaining control over temperature and pressure being applied to mold material located within the cavity, and

wherein said gas-permeable material is a metallic material.

Claim 5 (Currently Amended): The mold assembly of Claim 4, wherein said metallic gas-permeable material is aluminum.

Claim 6 (Currently Amended): The mold assembly of Claim 4 4, wherein at least a portion of one of said mold members is operable to heat said mold cavity.

Claim 7 (Currently Amended): The mold assembly of Claim 4 4, wherein said gas-permeable material is operable at temperatures less than about 210 degrees Celsius.

Claim 8 (Currently Amended): The mold assembly of Claim 4 4, wherein said gas-permeable material is operable at pressures between about 200 to 2,000 kg/cm².

Claim 9 (Currently Amended): The mold assembly of Claim 4 4, wherein the molded composite material is at least one of a friction material, phenolic resin, and a large reinforcement containing structure component.

Claims 10-53 (Cancelled)

Claim 54 (New): The mold assembly of claim 4, wherein first mold member comprises a punch formed at least in part of micro-porous sintered aluminum.

Claim 55 (New): The mold assembly of claim 54, wherein the entire first mold member comprises micro-porous sintered aluminum.

Claim 56 (New): A mold assembly operable to form a composite material, the mold assembly comprising:

- a first translatable mold member comprising a punch having an exterior wall defining an outer diameter, the first mold member being formed of micro-porous sintered aluminum; and

- a second mold member defining an opening having an elongated inner diameter, wherein the outer diameter and the inner diameter are generally the same and wherein the first mold member is movable within the opening formed in the second mold member to form a mold cavity,

- wherein the surface of the first mold member defining the cavity is formed of a porous gas-permeable material operable to vent therethrough gasses occurring in said cavity during a molding operation without disturbing the formed mold cavity and while preventing recombination and condensation of said gaseous reactants within said portion,

wherein the first or second mold member is operable to heat the mold assembly at temperatures less than about 210 degrees Celsius,

wherein said gas-permeable material has a porosity between about 5 to 25% and an average pore diameter between about 1 to 280 microns, and wherein the porous gas-permeable material controls venting of the gasses between about 200-2000 kg/cm² while maintaining control over temperature and pressure being applied to mold material located within the cavity.

Claim 57 (New): The mold assembly of claim 56, wherein the amount of heat provided by the first or second mold member is sufficient to cause reaction of the mixture within the cavity.

Claim 58 (New): The mold assembly of claim 57, wherein the amount of heat and pressure provided by the first or second mold member is sufficient to cause reaction of a phenolic novolac resin and hexamethylenetetramine within the cavity.

Claim 59 (Currently Amended): The mold assembly of Claim 58, wherein the molded composite material is at least one of a friction material, phenolic resin, and a large reinforcement containing structure component.

Claim 61 (New): The mold assembly of claim 56, wherein the first and second mold members are operable to heat the mold assembly.

Claim 62 (New): The mold assembly of claim 56, wherein the second mold member includes a mold body.